DISCUSSION OF THE CLAIMS

Claims 1-32 are pending in the present application. The claims are amended for mattes of form and/or clarity not effecting the scope of the previously presented claims.

No new matter is added.

REMARKS

Applicants thank the Office for withdrawing those rejections discussed on page 2 of the September 30 Office Action. The Office now newly rejects the claims under 35 U.S.C. § 112 and/or 35 U.S.C. § 101. Applicants submit the rejections should be withdrawn in view of the amended claims and arguments submitted herein below.

Claim 4 is amended to recite the particular structures (I) – (III) described in Claims 1-3. Claim 4 now includes an explicit structural description of the product obtained by the reaction recited in Claim 4.

Applicants thus respectfully request withdrawal of the rejection of Claim 4 under 35 U.S.C. § 112, first and second paragraphs.

The Office rejected Claims 6-7 and 27-30 as indefinite. The Office asserts that the structure of the triazine carbamate is unclear in Claims 6 and 7. Applicants point out that Claim 6 is drawn to a process for preparing the compound of formula (I) which is described by its structure in Claim 1 from which Claim 6 depends. Claim 6 cannot be indefinite for the reason that the triazine carbamate product formed by the process is unclear because the triazine carbamate is described in Claim 1. No guessing of the structural make-up of the product is necessary for those of skill in the art to determine the product form by the process of Claim 6.

Applicants respectfully request withdrawal of the rejection.

The same arguments apply to Claim 7 which is drawn to a process in which a product of formula (I) – (III) is formed. Chemical structures for each of the compounds of formula (I) – (III) are explicit in Claim 7. The Office's assertion that those of skill in the art would have to "guess the structural make-up of the product" is baseless. The structural make-up of the product, i.e., the compound of formula (I) – (III), is explicitly defined in Claim 7.

Applicants thus respectfully request withdrawal of the rejection.

On page 4, paragraph no. 3 of the September 30 Office Action, the Office appears to be of the opinion that compounds such as "polyether(meth)acrylates" do not have methacryloyl or acryloyl groups. Applicants submit that those of skill in the art readily recognize that an acryloyl group has a particular formula. Applicants submit herewith the chemical definition for "acryloyl group" obtained from www.wikipedia.org on November 11, 2010. Applicants further submit a technical description for a "Laromer" acryloyl-substituted polyether compound. It is readily evident that the "Laromer" polyether compound includes an acryloyl group such as that described in the technical definition for "acryloyl group" submitted concurrently herewith.

Thus, contrary to the Office's assertion, Claim 5 is not outside the scope of Claim 4, and the rejection should be withdrawn.

In paragraph no. 4 on page 4 of the September 30 Office Action, the Office asserts that the alcohol of Claim 8 is vague and unclear because the compound of formula (V) includes a carbamate group having a R^2 group. Applicants submit that the Office's assertion of lack of clarity is baseless in view of the fact that both the R^1 and R^2 groups are defined to be C_1-C_{20} alkylene groups. It doesn't matter that there are groups identified as R^1 and R^2 in the product and only a group R^1 in the alcohol because the R^1 and R^2 groups are defined to be the same family of C_1-C_{20} alkylene groups.

Applicants thus respectfully request withdrawal of the rejection.

In paragraph no. 5 on page 4 of the September 30 Office Action, the Office asserts that Claims 10 and 11 are drawn to methods "of the use of compound of claim 1" that "merely recites a use without any active, positive steps . . ." Applicants submit the Office's assertion in this respect is manifestly incorrect. Both Claims 10 and 11 recite active steps of "radiation-curing" and "dual-curing", respectively. Claims 16-18 likewise explicitly include

active, positive steps of "dual-curing". The Office's assertions as set forth in paragraph no. 5 are baseless and the rejection should be withdrawn.

Applicants draw the Office's attention to paragraph [0042] of the PG Publication corresponding with the present application, i.e., US2007/0208101. Paragraph [0042] provides an explicit definition of the term "dual-cure".

The logic above likewise applies to the Office's rejection of these claims under 35 U.S.C. § 101 on pages 11 and 12 of the September 30 Office Action. Contrary to the Office's erroneous assertion, each of the rejected claims explicitly recites an active, positive step.

Thus, the rejection for lack of statutory subject matter should likewise be withdrawn.

Claim 12 is rejected in paragraph no. 6 on page 5 of the September 30 Office Action. The Office asserts that the structural make-up of the product formed by the process of Claim 12 is unclear. Applicants point out that Claim 12 is drawn to a process of preparing the compound of Claim 2. Claim 2 explicitly sets forth the structural make-up of the product. The Office's assertion of indefiniteness is baseless in view of the fact that the product is explicitly defined in Claim 2 from which Claim 12 depends.

Further, Claim 2 defines two formulas (II) and (III). Curiously, the Office interprets Claim 12 as encompassing the scope of Claims 1, 2 and 3. Claim 12 depends from Claim 2, not from Claim 1 or 3.

Applicants respectfully request withdrawal of the rejection.

The Office further rejected Claim 12 in paragraph no. 7 on page 5 of the September 30 Office Action. The Office asserts that the group R^2 is not in Claim 2 on which Claim 12 depends. This is not correct. Claim 2 explicitly defines the group R^2 as a C_1-C_{20} alkylene group. Perhaps the Office intended to base the rejection on the group R^3. However, such a rejection likewise makes no sense because all of groups R^1, R^2, and R^3 represent the same family; namely, a C_1-C_{20} alkylene group.

Applicants respectfully request withdrawal of the rejection.

In paragraph no. 8 on page 5 of the September 30 Office Action, Claims 11 and 16-18 are rejected as indefinite. The Office erroneously asserts that these claims do not state what composition is subjected to dual-curing. The Office's assertion ignores the fact that these claims are dependent from claims which explicitly recite at least one component of the composition that is subjected to the dual-curing. It does not matter that the compounds of Claims 1-3 are not "recited as dual-curing composition". As explicitly set forth in the claim, the composition must include the particular triazine carbamate of the independent claims. There is no requirement under U.S. patent law that each component of the composition subjected to dual-curing is explicitly set forth in the claims. There is no mystery here. The composition is one that comprises a particular triazine carbamate but does not exclude other components.

Applicants respectfully request withdrawal of the rejection.

The amendment to Claim 15 is believed to obviate the rejection set forth in paragraph no. 9 on page 5 of the September 30 Office Action.

On page 6 of the September 30 Office Action, the Office appears to set forth contradictory logic. On the one hand, the Office admits that the subject matter of certain claims are enabled but, on the other hand, appears to assert that the subject matter is not enabled. The rejection set forth on page 6, does not set forth any comprehensible basis for supporting a rejection of the claims for lacking enablement.

To the extent the rejection is understood, the amendment to Claim 4 is believed to obviate the rejection at least insofar as Claim 4 is concerned.

In the last full paragraph on page 8 of the Office Action, the Office appears to make the assertion that the claims are not enabled because the "structural make-up of the alcohol is not clearly defined." Applicants submit that the alcohol is, in fact, defined by the nature of

the product derived from the reaction, i.e., by the definition of the R, X and Z groups. With regard to Claim 6 in particular, the alcohol group is explicitly defined in the claim.

The Office asserts that the processes of Claims 4-8 and 12 "imply" that certain reactions can occur with any type of alcohol. This makes neither legal sense nor factual sense. The issue at bar is whether those of skill in the art would be enabled to carry out the claimed process. Here, the structure of the product of the process is explicitly defined. Those of skill in the art would recognize that using an alcohol that is unable to provide the R, X, or Z substitution defined in the desired product could not be used in the claimed process. Any implication that the Office derives from the claims is unsupported and is not grounded in any understanding of how those of ordinary skill in the art would interpret the claims.

The Office's assertion is therefore legally not supportable because it does not apply the correct standard and is not factually supportable because alcohol groups cannot magically be made to adhere to the R, X, and Z requirements set forth for the triazine carbamate products made in the claimed processes.

Applicants thus respectfully request withdrawal of the rejection.

The Office further rejected Claim 4 under 37 C.F.R. § 1.75 on page 12 of the Office Action. Applicants draw the Office's attention to MPEP § 608.01(n) which states in relevant part:

> Note, that although 37 C.F.R. § 1.75(c) requires the dependent claim to further limit a preceding claim, this rule does not apply to product-by-process claims.

Although Claim 4 here is an independent claim, the legal logic is the same. A product-by-process claim is of different scope than a product claim, the two are not duplicates.

Applicants respectfully request withdrawal of the objection to Claim 4.

Applicants point out that this argument was set forth on page 17 with reference to MPEP § 2173.05(p)(I) in Applicants' August 6, 2010 Amendment. It appears that the Office gave this argument no consideration.

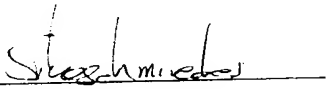
With regard to the rejection of the claims for obviousness-type double patenting, Applicants again draw the Office's attention to those arguments set forth on pages 18 and 19 of Applicants' August 6, 2010 Amendment. In any case, the co-pending application and the present application were filed on the same day, thus no improper extension of the patent term would occur if both applications issue as a patent.

Applicants reserve the right to file a Terminal Disclaimer to obviate the rejection later, if desired.

For the reasons discussed above in detail, Applicants request withdrawal of the rejections and the allowance of all now-pending claims.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, L.L.P.



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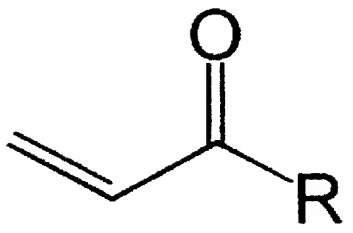
cryloyl group

n Wikipedia, the free encyclopedia

rganic chemistry, the **acryloyl group** is the functional group with structure
:=CH–C(=O)–; it is the acyl group derived from acrylic acid. The preferred
'AC name for the group is **prop-2-enoyl**, and it is also (less correctly) known as
ylyl or simply **acryl**. Compounds containing an acryloyl group can be referred to
acrylic compounds".



Structure of the acryloyl group

acrylic compound is typically an α,β-unsaturated carbonyl compound: it contains
.rbon–carbon double bond and a carbon–oxygen double bond, separated by a
)on–carbon single bond. It has therefore the properties characteristic for both
:tional groups :

- at the C=C bond: electrophilic addition of acids and halogens, hydrogenation, hydroxylation and cleavage of the bond
- at the C=O bond: nucleophilic substitution (such as in esters) or nucleophilic addition (such as in ketones). The carboxyl group of acrylic acid can react with ammonia to form acrylamide, or with an alcohol to form an acrylate ester.

.ddition, since both double bonds are separated by a single C–C bond, the double bonds are conjugated.

e also

ylic polymer

rieved from "http://en.wikipedia.org/wiki/Acryloyl_group"
egories: Functional groups | Organic chemistry stubs

Technical Information

Coatings Raw Materials

TI/ED 1481 e
August 1996 (PW)

Supersedes edition of February 1990

Laromer® TPGDA

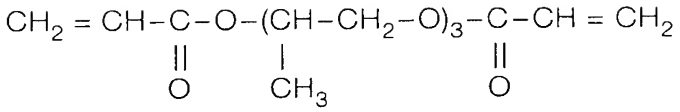
Acrylic acid ester for manufacturing polymers and as a feedstock for syntheses

File cover "Coatings Raw Materials", Part 1, 5

Dispersions

BASF

Laromer TPGDA
(Tripropylene glycol diacrylate)



$C_{15}H_{24}O_6$

EU classification

irritating

Properties

Product specification

Water content (DIN 51777)	max. 0.1 %
Acidity as acrylic acid	max. 0.1 %
Platinum-cobalt colour (DIN ISO 6271) ex works	max. 150
Standard stabilization	300 – 400 ppm MEHQ*

* *monomethyl ether of hydroquinone*

Other properties

Appearance	clear, colourless
Physical form	liquid
Odour	ester-like
Density at 25 °C (DIN 51757)	1.0355 g/cm³
Refractive index n_D at 20 °C (DIN 53169)	1.4510
Boiling point (DIN 51751)	109 °C at 0.3 mbar
Solidification point (BS 523/1964)	approx. – 60 °C
Product becomes highly viscous but not crystalline below – 30 °C	
Viscosity (DIN 51562)	
at 10 °C	21.0 mPa·s
at 25 °C	10.5 mPa·s
at 40 °C	6.2 mPa·s
Specific heat capacity (of liquid)	1.774 kJ/(kg·K)
Vapour pressure at 20 °C	$< 10^{-5}$ mbar
50 °C	$< 10^{-3}$ mbar
100 °C	0.15 mbar
Pensky-Martens flashpoint (DIN 51758)	> 100 °C
Ignition temperature (DIN 51794)	225 °C
Temperature category (VDE 170/171)	T 3
Explosion limits in air/oxygen	indeterminable
Solubility in water at 25 °C	0.036 g/100 ml
Solubility of water in Laromer TPGDA	1.6 g/100 ml
Miscibility with organic solvents	miscible with most organic solvents

Application

Laromer TPGDA contains two polymerizable acrylic groups per molecule, which enable it to form copolymers of, for example, acrylic or methacrylic acids and their salts, amides, esters, vinyl acetate and styrene. Laromer TPGDA is also an important feedstock for chemical syntheses because it readily enters into addition reactions. The polymerizable groups allow the product to be used as a crosslinking component, eg in radiation-curing coatings, where it also acts as a thinner. During curing, the Laromer TPGDA becomes part of the polymer structure.

Processing

The product can be polymerized by the usual block, solution, suspension and emulsion techniques. Removal of the stabilizer beforehand is generally unnecessary as its effect can be counteracted by an excess of initiator.

Safety

General

Attention must be paid to the normal precautions for handling chemicals and to the measures prescribed in the local health regulations. The workplace must be well ventilated, skin care measures should be adopted and eye protection should be worn.

Safety Data Sheet	The Safety Data Sheet for Laromer TPGDA provides information on all the known safety data.
Labelling	Labelling information can be found in the Safety Data Sheet.
Physiological effects	
Oral	LD_{50} (rat, oral): > 5000 mg/kg.
Skin	Laromer TPGDA irritates skin. Protective gloves should therefore be worn at all times. Additionally, since there is a risk of absorption through the skin, clothing contaminated with Laromer TPGDA must be removed immediately and the affected area washed with copious amounts of water.
Mucous membranes and eyes	Laromer TPGDA irritates mucous membranes and eyes. Suitable eye protection must therefore be worn. Eyes that have been affected should be rinsed thoroughly with running water for 15 minutes and medical advice sought.
Inhalation	Laromer TPGDA vapours should not be inhaled because they can irritate the mucous membranes.

Storage

To avoid premature polymerization Laromer TPGDA must only be stored in a stabilized state under a blanket of air (not inert gases) and away from light. The storage temperature should not exceed + 25 °C. Under these conditions, we guarantee a shelf life of 6 months. If the permissible storage time or storage temperature is exceeded significantly, the product may polymerize.

Storage containers and pipes should be made of stainless steel, aluminium, glass or plain-carbon steel coated with a phenol resin finish. Storage containers, pumps and pipes must be earthed.

Note

The information submitted in this publication is based on our current knowledge and experience. In view of the many factors that may affect processing and application, these data do not relieve processors of the responsibility of carrying out their own tests and experiments; neither do they imply any legally binding assurance of certain properties or of suitability for a specific purpose. It is the responsibility of those to whom we supply our products to ensure that any proprietary rights and existing laws and legislation are observed.

Literature

Acryl- und Methacrylverbindungen, H. Rauch-Puntigarn und T. Völker (Springer 1967).

Dispersionen synthetischer Hochpolymere, F. Hölscher und H. Reinhard (Springer 1969).

BASF Technical Information TI/ED 1403 e "The handling and storage of acrylic esters".

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